DomotiGa
Open Source Home Automation Software for Linux

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HOWTO RFXCom RFXtrx

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1 HOWTO RFXCom RFXtrx

1.1 Introduction

This is the HOWTO to setup and use the RFXCom RFXtrx and/or RFXrec. The RFXtrx can transmit and receive signals and is available for 315MHz and 433.92MHz. The 315MHz is mostly meant for the USA market and the 433.92MHz is much more commonly used by many home automation sensors and devices.

1.2 Requirements

This HOWTO and RFXtrx have the following requirement(s):

- DomotiGa 0.1.204 or higher

1.3 Supported Devices

The list of supported devices by the RFXtrx is included in chapter 4 Support Devices. For the latest list of devices, please visit the RFXCom site http://www.rfxcom.com

1.4 Connect RFXtrx

The RFXtrx has an USB interface and can be easily connected to your DomotiGa system. When you connect the RFXtrx device to your Linux system it will get a device name like "`/dev/ttyUSBX`". After you have connected RFXtrx, you can determine your device name with the "`dmesg`" command as follows:

```
$ dmesg
…
[   21.457668] USB Serial support registered for FTDI USB Serial Device
[   21.459666] ftdi_sio 1-2.1:1.0: FTDI USB Serial Device converter detected
[   21.460326] usb 1-2.1: Detected FT232RL
[   21.460348] usb 1-2.1: Number of endpoints 2
[   21.460365] usb 1-2.1: Endpoint 1 MaxPacketSize 64
[   21.460382] usb 1-2.1: Endpoint 2 MaxPacketSize 64
[   21.460398] usb 1-2.1: Setting MaxPacketSize 64
[   21.469988] usb 1-2.1: FTDI USB Serial Device converter now attached to ttyUSB0
[   21.470482] usbcore: registered new interface driver ftdi_sio
[   21.470502] ftdi_sio: v1.5.0:USB FTDI Serial Converters Driver
```

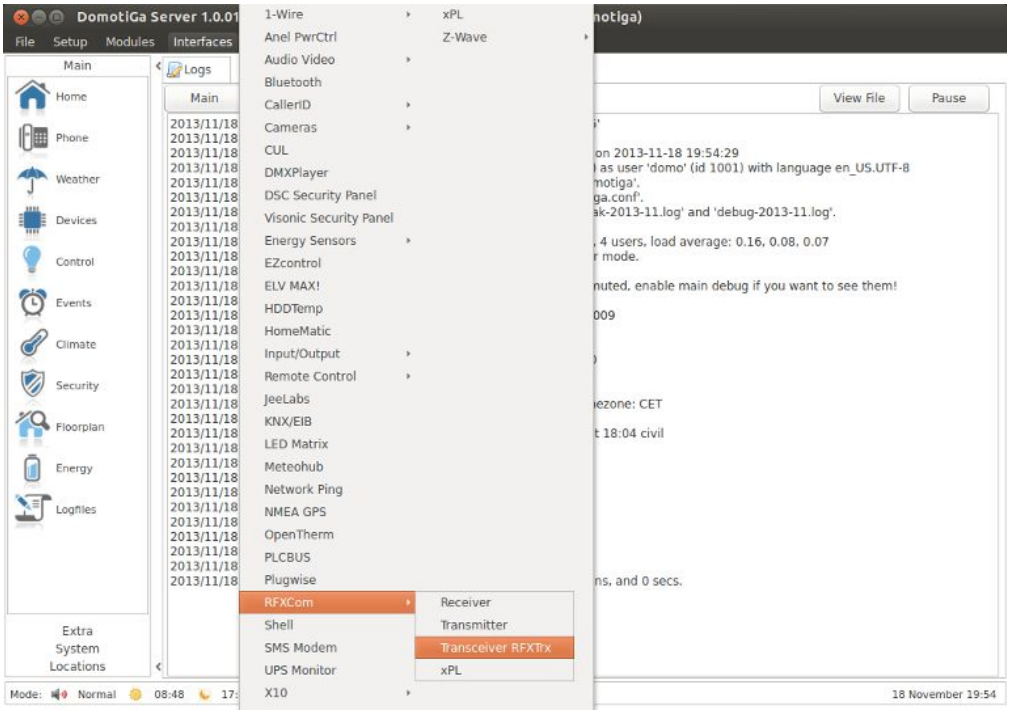
In this example the RFXtrx got the name "`/dev/ttyUSB0`".

The device name e.g. "`/dev/ttyUSB0`" can change after reboot, please consult the FAQ on http://www.domotiga.nl how to lock the device name.

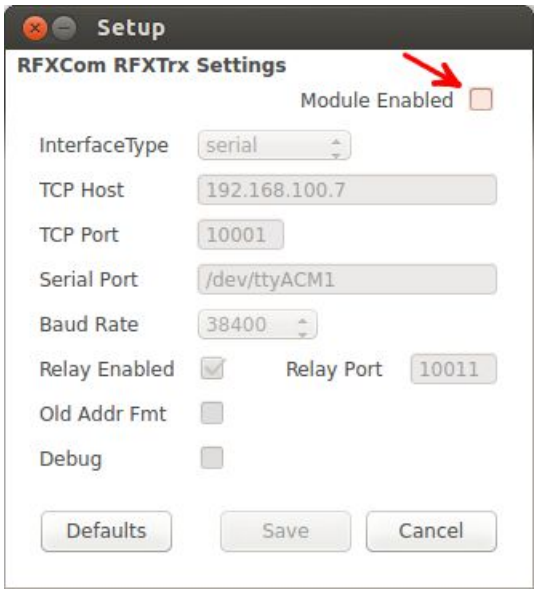
1.5 DomotiGa Setup

After the RFXtrx has been succesfully connected and the device name is known, we can configure DomotiGa to use the device. Start the DomotiGa GUI and go to

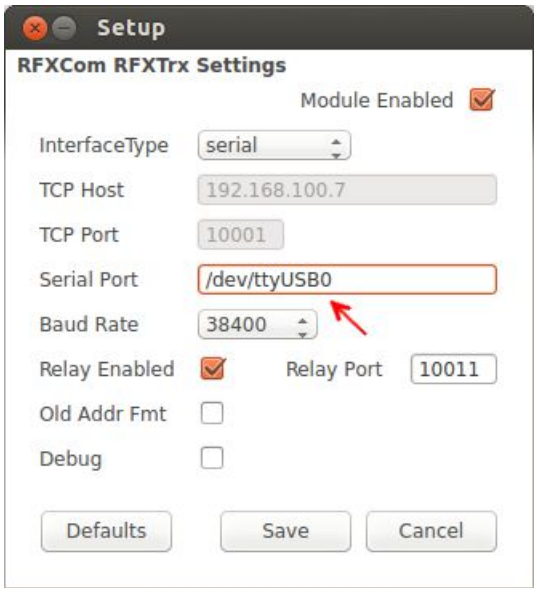
the "`Transceiver RFXtrx`" interface. This interface is located in the top menu bar, click on "`Interfaces => RFXCom => Transceiver RFXtrx`". As shown in the following screen.



After you clicked on the menu, this will give you the following screen. By default the module is disabled, click on "`Module Enabled`" option to enable it now.



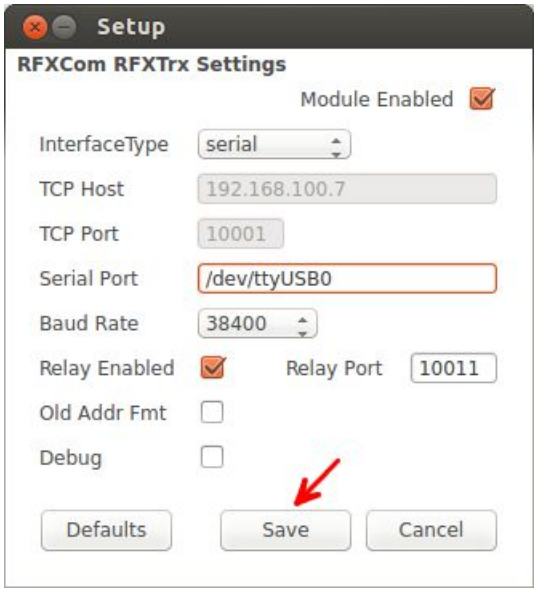
After the module is enabled, you can configure your RFXtrx device, as shown in the following screen. Normally you only have to configure the "`Serial Port`", the device name you written down earlier. In the example below we re-use "`/dev/ttyUSB0`".



The configuration items and their description are detailed in the following table:

Parameter	Description
InterfaceType	The interface type to connect to the RFXtrx device, the supported types are TCP and serial. Normally the RFXtrx will be connected via serial.
TCP Host	The hostname or IP address on which the RFXtrx device is listening.
TCP Port	The port number on which the RFXtrx device is listening.
Serial Port	The device name of the serial port where the RFXtrx is connected to.
Baud Rate	The baud rate used to connect to the serial port, for the RFXtrx this should be always 38400.
Relay Enabled	Enable relaying of the received information to another DomotiGa or device.
Relay Port	The relay port to which the other party needs to connect to.
Old Addr Fmt	
Debug	Enable debugging for this specific module, handy for troubleshooting.

After you configured the RFXtrx in DomotiGa, click on the "`Save`" button, as shown in the following screen. This will save your configuration and it will try to start the connection with the RFXtrx device.



After you clicked on "`Save`" button, check the main log if DomotiGa has successfully connected to your RFXtrx device. The following screenshot shows that it connected:

```
2013/11/23 17:21:22 [Plugin] JSON-RPC enabled.
2013/11/23 17:21:22 [JSONRPC] JSON-RPC Server listening on Port 9090
2013/11/23 17:21:22 [Plugin] RFXCom Transceiver enabled.
2013/11/23 17:21:22 [RFXComTRX] RFXCom Transceiver interface connected to Port /dev/ttyUSB0
2013/11/23 17:21:22 [RFXComTRX] Relay listening for client on port 10011
2013/11/23 17:21:22 [Main] Done with setup ...
2013/11/23 17:21:22 [Main] Entering main program loop.
```

If you only run the DomotiGaServer, you can find the similar log in the directory "`~/domotiga/logs`" and the main log is named "`server-main-<yyyy>-<mm>.log`" (where "`yyyy`" is the year e.g. `2013` and the "`mm`" is the month e.g. `11`).

If your RFXtrx device is successfully connected, then you can continue with the next section. The next part of this section covers the most common mistake with the serial port.

If the connection has failed, the output will look like:

```
2013/11/23 17:33:26 [Plugin] JSON-RPC enabled.
2013/11/23 17:33:26 [JSONRPC] JSON-RPC Server listening on Port 9090
2013/11/23 17:33:26 [Plugin] RFXCom Transceiver enabled.
2013/11/23 17:33:26 [RFXComTRX] ERROR: RFXCom Transceiver interface FAILED to connect to Port /dev/ttyUSB0
2013/11/23 17:33:26 [RFXComTRX] ERROR: Cannot open serial port (#5)
2013/11/23 17:33:26 [RFXComTRX] Relay listening for client on port 10011
2013/11/23 17:33:26 [Main] Done with setup ...
```

The most common mistake with "`Cannot open serial port (#5)`" is that the user account of DomotiGa isn't added to the "`dialout`" group. Add your user account, in this example the user is "`domo`", with the following command to this group:

```
$ sudo addgroup domo dialout
```

After you added the "`dialout`" group to your user account, you **need** to logout and login again to activate this change. Restart DomotiGa to connect to the RFXtrx device again, now it should successfully connect.

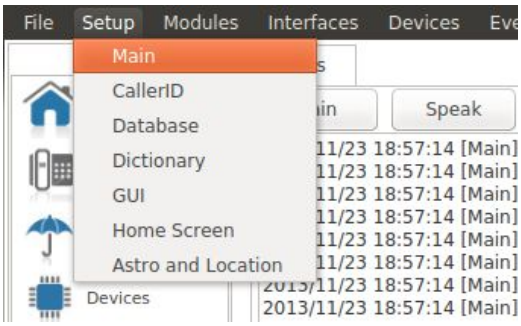
1.6 Add Devices

After the RFXtrx is connected to DomotiGa, we can start adding device. There are 2 type of devices, receivers and transmitters. Example are:

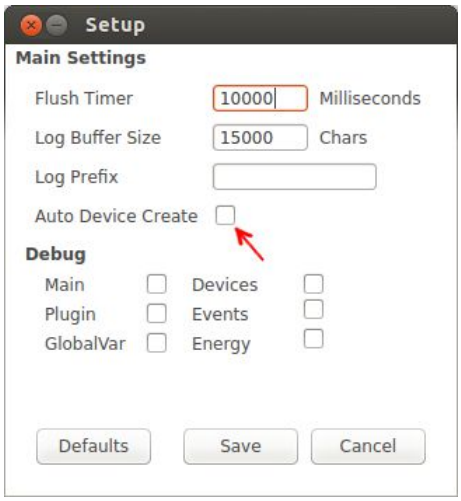
- Transmitters – Oregon Weather Sensors, La Crosse, Remotes
- Receivers – KlikAanKlikUit, X10 device, HomeEasy

1.6.1 Transmitters

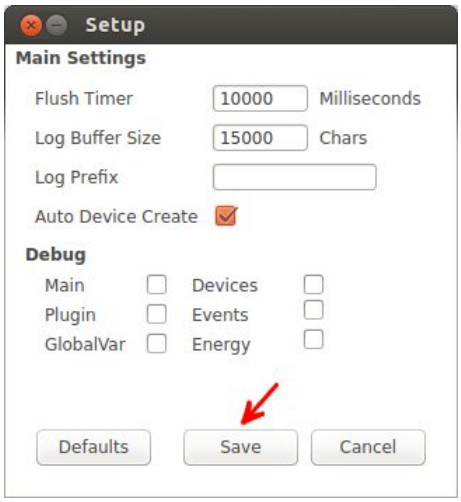
The best way to add transmitters like Oregon is to enable "`Auto Device Create`" and let the transmitter send a message, then DomotiGa will auto create the device including the address. To enable this feature, go to the top menu bar and click on "`Setup => Main`", as shown in the following screen.



After you clicked on the menu, this will give you the following screen. Click on the "`Auto Device Create`" option to enable it.



When done, click on the "`Save`" button to save the new settings, as shown in the following screen.



Oregon Sensor

To add a new Oregon sensor, execute the following steps:

- Select the channel (if appropriate) on the Oregon sensor
- Insert the battery in the Oregon sensor
- Wait until the Oregon sensor has sent a RF packet, normally a few seconds after insertion of the battery or a sensor reset
- DomotiGa should auto create device now

Remote

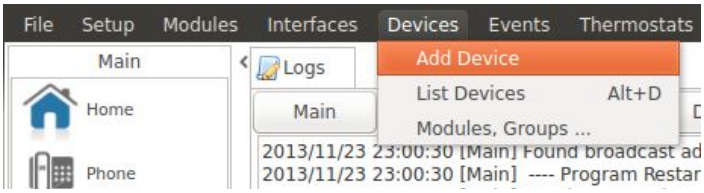
To add a new remote e.g. X10, KlikAanKlikUit, execute the following steps:

- Set the appropriate address on the remote
- Push a button on the remote
- DomotiGa should auto create device now

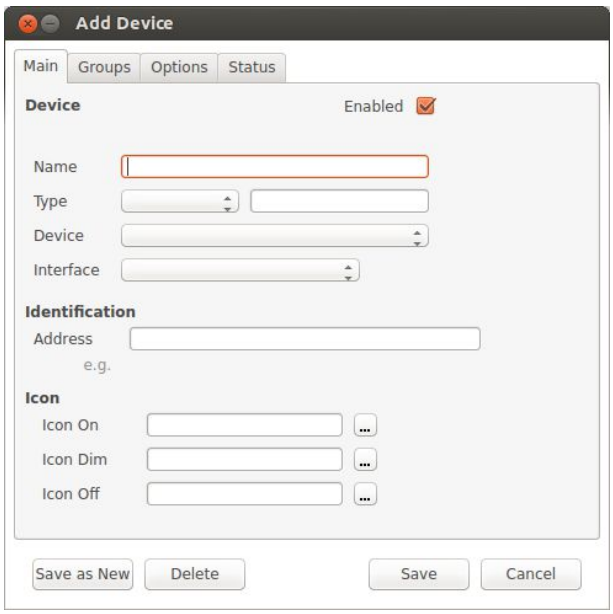
1.6.2 Receivers

Adding receivers is slightly more work, because they only receive signals. DomotiGa can only auto create devices when it transmits a signal to it. For adding the receiver, follow the next steps:

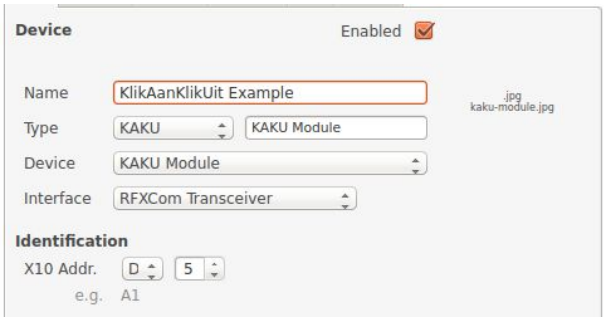
- Select the address (A-P / 1-16) on your device
- Go to the top menu bar and click on "`Devices => Add Device`", as shown in the following screen.



- The following screen will be shown and type in an unique name for the device. Also select the "type", "`Device`" and "`Interface`". The "`Interface`" has to be "`RFXCom Transceiver`".



- In the next screen as example a KlikAanKlikUit device is configured with address "`D5`".



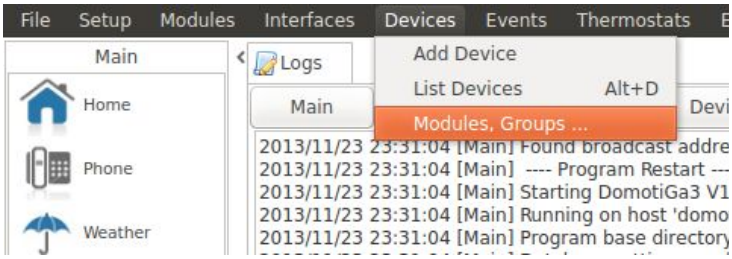
- This example KlikAanKlikUit device can be switched on and off, so we need to go to the "`Options`" tab before saving it. Click on the "`Device can be switched`" options, as shown in the following screen.

- The basic configuration of the device is done now, click on the "`Save`" button to store the device in DomotiGa.

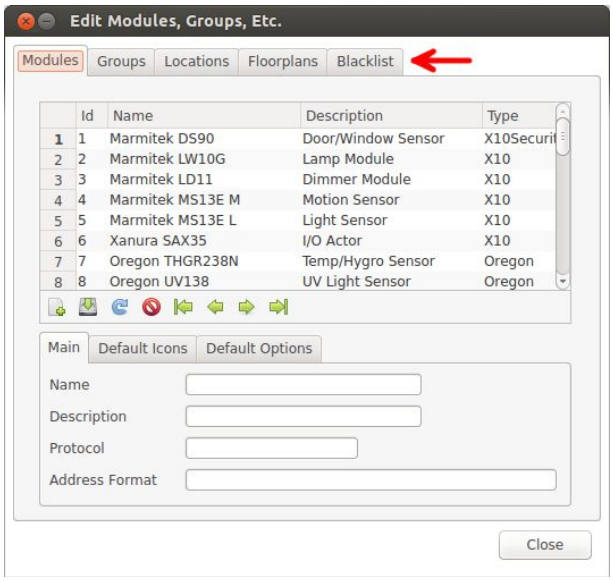
1.7 Blacklist Devices

Some transmitter like Oregon are very populair and most likely you will pick such signal up from one of your neighbours. This can be slightly annoying, because it can auto create devices. If you have picked up such device(s), then you known their address, than execute the following steps to blacklist them.

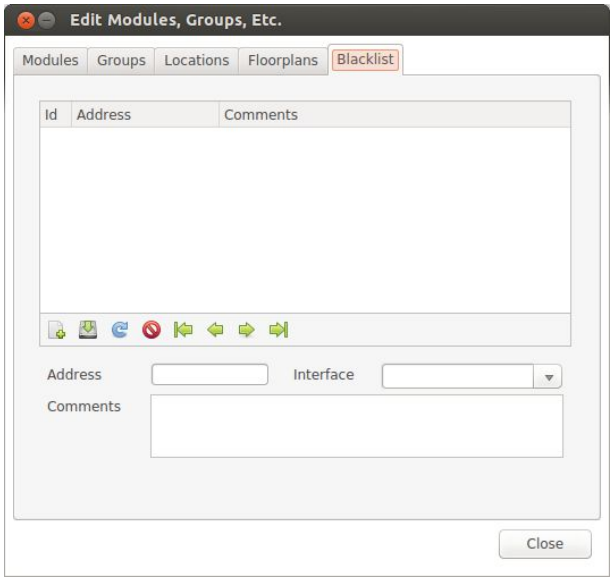
- Go to the top menu bar and click on "`Devices => Modules, Groups ...`", as shown in the following screen.



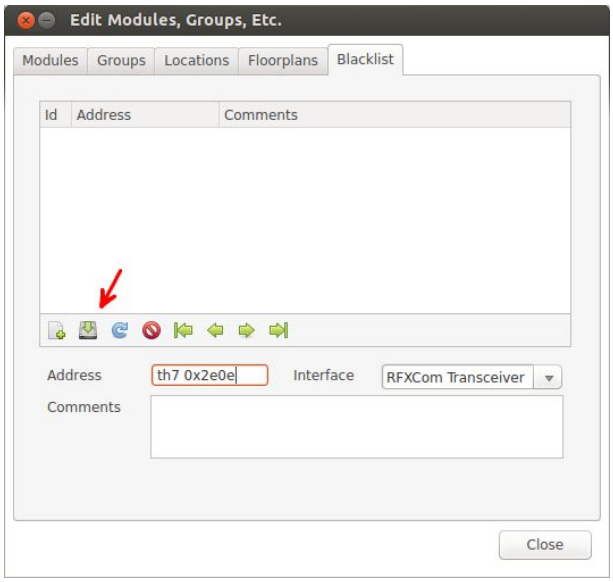
- After this the following screen is shown, click on the "`Blacklist`" tab.



- The "`Blacklist`" tab looks like the following screen. Fill in the field "`Address`" and select the right "`Interface`". In our case the "`Interface`" is normally "`RFXCom Transceiver`".



- In the following example we use as address "`th7 0x2e0e`" and the interface is "`RFXCom Transceiver`". After you supplied the information, press on the "`Save`" button (as the red arrow shows).



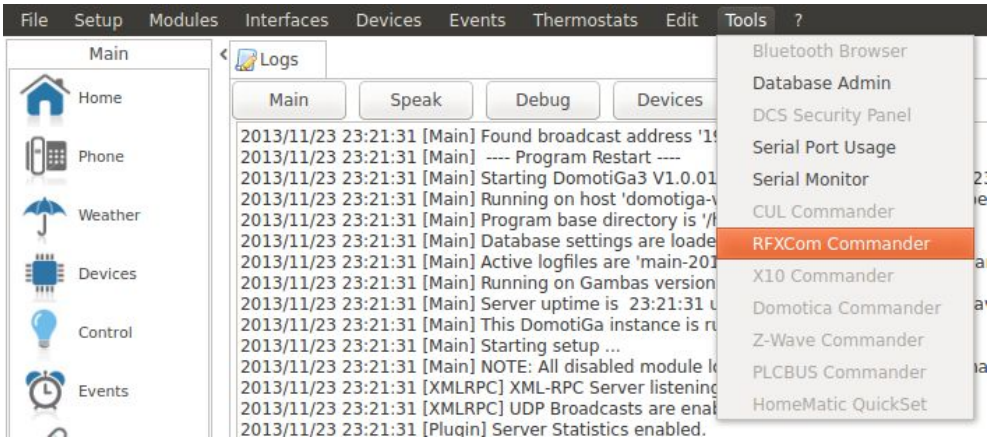
2 RFXCom Commander

This chapter describes the build in DomotiGa RFXCom Commander, with which you can enable/disable specific receiver settings, show RFXtrx information, control devices, etc. It has similar functionality as the RFXCom "`RFXmngr.exe`" application.

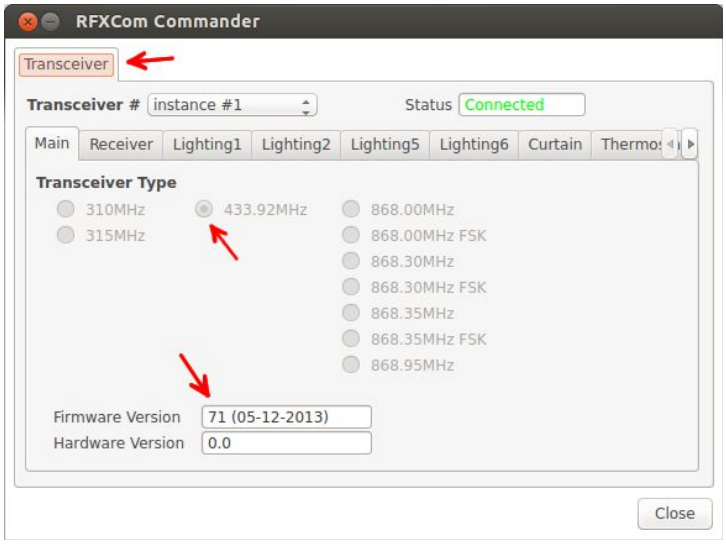
The RFXCom Commander is only available if the RFXComTRX, TX and/or RX interface is enabled.

2.1 RFXCom Commander

To use the RFXCom Commander go to the top menu bar and click on "`Tools => RFXCom Commander`", as shown in the following screen.

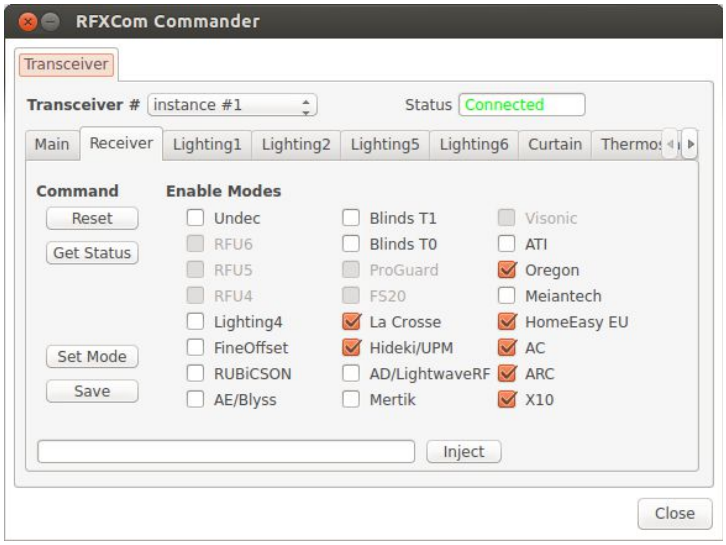


This will show the follow following screen and here you can see information of your RFXtrx. Most importantly is that the status is is "`Connected`", then the RFXtrx is detected and available to DomotiGa. Also the type and firmware information is shown.



Depending on the transmitters to be used with the RFXtrx, it is important to enable all the required modes. Try to limit the number of enabled modes, because RFXtrx becomes less sensitive with too many enabled modes. The following screen shows the "Receiver" tab and the default modes. The latest list of devices and modes to enable, can be found on the RFXCom website. . Also they are in "User Guide":

http://www.rfxcom.com/Documents/RFXtrx%20User%20Guide.pdf



After all required modes are enabled, click on the "Save" button to store this in the none-volatile memory of the RFXtrx.

The other tabs "Lighting1", "Lighting2", "Lighting5", "Lighting6", "Curtain" and "Thermostat2" can be used to test your receiver(s), you can turn them on, off, dim, etc. This can all be done without having to configure them first in DomotiGa.

3 FAQ

The following Frequently Asked Questions should give you answers to most common questions or problems.

Q: Where can I find more information and help about RFXCom

A: For more help go to the RFXCom website: http://rfxcom.com

4 Support Devices

The following list are the supported devices by RFXCom RFXtrx433, depending on the type it can transmit and/or receive. The latest list of supported devices can be found on the RFXCom site. Also they are in "`User Guide`":

http://www.rfxcom.com/Documents/RFXtrx%20User%20Guide.pdf

Device Name	Transmit	Receive
Alecto WS1200		Yes
ANSLUT	Yes	Yes
A-OK Roller Blind Motor	Yes	
ATI Remote Wonder*	Yes	Yes
ATI Remote Wonder II*	Yes	Yes
ATI Remote Wonder Plus*	Yes	Yes
Atlantic	Yes	Yes
Blyss (Lighting)	Yes	Yes
Brennenstuhl	Yes	
ByeByeStandby	Yes	Yes
Byron SX Chime	Yes	Yes
Cent-a-meter, Electrisave		Yes
Chanon	Yes	Yes
COCO	Yes	Yes
Cresta Weather Sensors – TX2, TX3, TX4, TX7, TX17, WS2300		Yes
DI.O	Yes	Yes
Digimax		Yes
Digimax – RTS10, RFS10, TLX1206*	Yes	
DomiaLite	Yes	Yes
Düwi	Yes	Yes
Ebode – XDOM	Yes	Yes
ELRO AB400	Yes	
ELRO AB600	Yes	Yes

Ematronic Roller Blind Motor	Yes	
Energenie ENER010	Yes	
Harrison Curtain	Yes	
Hasta Motor	Yes	
Hideki, TFA Weather Sensors		Yes
HomeEasy	Yes	Yes
HomeEasy EU	Yes	Yes
Ikea Koppla*	Yes	
Impuls	Yes	
Intertechno	Yes	Yes
KD101 (Avidsen, Chanon, NEXA, Flamingo, Blyss, Proove)*	Yes	Yes
KlikAanKlikUit	Yes	Yes
La Cross Weather Sensors		Yes
Lexibook – SM883		Yes
LightwaveRF, Siemens (Lighting & Power)	Yes	Yes
Media Mount Projection Screen	Yes	
Meiantech	Yes	Yes
Mertik Maxitrol – G6R-H4T1, G6R-H4TB*	Yes	Yes
NEXA	Yes	Yes
Next Design IW008T		Yes
Oregon Scientific Weather Sensors (all 1.0, 2.1 & 3.0) – AW129, AW131, BTHR918, BTHR918N, BTHR968, PCR800, RGR126, RGR682, RGR918, RTGR328N, RTGR328N, STR918, THC138, THC238, THC268, THGN122N, THGN123N, THGN500, THGR122NX, THGR228N, THGR238, THGR268, THGR328N, THGR810, THGR918, THGRN228NX, THN122N/132N, THR128, THR138, THRN122N, THWR288A, UV138, UVN128, UVN800, WGR800, WGR918, WTGR800, WTGR800		Yes
Oregon Scientific – BWR101, BWR102, GR101		Yes
OWL – CM113, CM119, CM160, CM180, Intuition CM180i		Yes
PC Remote*	Yes	Yes
Phenix	Yes	

Philips SBCSP370, SBCSP375	Yes	
Proove	Yes	Yes
PT2262 Receivers	Yes	
Raex Roller Blind Motor	Yes	
RFXMeter		Yes
RFXSensor		Yes
Rising Sun	Yes	
RollerTrol Blinds	Yes	
RUBiCSON – 48659, 48695		Yes
Sartano	Yes	
Techno line TX95-TH		Yes
UPM/Esic Clas Ohlson (very short receive range)		Yes
Viking, FineOffset – 02035, 02038, 02811		Yes
Waveman	Yes	
X10 Lighting	Yes	Yes
X10 Security*	Yes	Yes
X10 Ninja/Robocam*	Yes	
X10 Remotes		Yes

** Transmitting of these protocols not yet supported in DomotiGa, but if requested, it can be added.*

Version History

Version	Status	Date	Details of Changes	Author(s)
1.00	DRAFT	24-Nov-2013	Initial version	Alexie
1.01	DRAFT	31-Jan-2013	Added the RFXCom Commander information	Alexie